Distress calls for help: The effect of a business crisis on the take-up of business support services by microentrepreneurs

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Abstract

We explore initial drivers for external learning activities of entrepreneurs in Base-of-the-Pyramid environments. For this purpose, we explore a dataset of 5,868 individual microentrepreneurs in Brazil and compare those microentrepreneurs who opt for the take-up of a business support service with those who eschew this possibility. Our results indicate that microentrepreneurs experience an unsteady state of their business prior to the take-up of external business support services. We hereby enrich our understanding of entrepreneurial learning, by identifying business distress as an initial driver for engagement in external learning activities and enhance the knowledge on learning processes and how learning sequences can be initiated.

Keywords: Entrepreneurship; Entrepreneurial Learning; Base-of-the-Pyramid; Business Trainings

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1. Introduction

Entrepreneurial learning has been shown to be central for firms to innovate, to realize market opportunities and to generate competitive advantages (i.e. Argote & Ingram, 2000; Santos-Vijande, López-Sánchez, & Trespalacios, 2012). The literature on discrete learning processes shows how direct learning through trial-and-error (Haunschild & Sullivan, 2002), experimental (Pisano, 1994) or improvisational learning (Miner, Bassoff, & Moorman, 2001) can be fruitful for firm development and applied to contexts as diverse as learning for diversification of the firm´s market activities or improvement of business productivity (Darr, Argote, & Epple, 1995). Recently the literature evolved from the analysis of isolated direct or indirect learning process towards theorizing the process in which learning takes place and to the understanding of learning sequences (Bingham & Davis, 2012).

Due to this new development in the understanding of learning sequences we know that firms either start their learning sequence with indirect learning activities and then evolve to direct learning or can start their sequence with direct learning activities straight away, whereby the order of the sequence seems to be dominated by the executive experience of the task at hand (Bingham & Davis, 2012).

However, little is known about what initially drives firms to pursue learning activities. This gap is critical. From a practical perspective, if there are specific reasons for which firms pursue learning activities than these are immediate applications for public policy initiatives that intend to foster entrepreneurs' ability to maintain and grow their business. From a theoretical perspective, the understanding of drivers for learning is imperative as it may shape the way learning sequences in the organizational context take place. Therefore, identifying initial drivers for learning is crucial to the development of the concept of sequences in process research on learning (Burgham & Davis, 2012). Likewise, possible drivers

for learning activities may explain why learning processes or learning sequences do not initiate in cases in which these drivers are missing.

This paper contributes to a better understanding of initial drivers for learning by analyzing the take-up of business support services such as consulting and trainings by entrepreneurs at the Base-of-the-Pyramid with no (or at most one) employee. This population of entrepreneurs is scarcely studied in the entrepreneurship literature, but it is particularly relevant, as a large part of developing countries' economies is made up of self-employed entrepreneurs in Base-of-the-Pyramid environments with no, or very few, employees (Banerjee & Duflo, 2012). Making these small business owners better prepared for their market operations might stabilize their earnings, increase their business activities, and lead to job generation in the long run.

On this premise, governments and international organizations such as the International Labor Organization (Start and Improve your Business Programs) or Techno Serve (Women Mean Business) have focused on developing training and consulting programs that can help small business owners in their endeavors, and local providers joined the efforts worldwide. In Brazil, for example, entrepreneurs have open and free-of-charge access to business support services at SEBRAE (Brazilian Service of Support for the Micro and Small Enterprise). The take-up of these services can be seen as a way to explore an opportunity, as the required information may likely lead to the creation of new knowledge (Alvarez & Busenitz, 2007).

Surprisingly, take-up of training programs is low, even when services are offered for free (McKenzie & Woodruff, 2013). The drivers of take-up are still ambiguous, and incentives to increase take-up have showed limited effects (Bruhn, Ibarra, & McKenzie, 2013). While some studies have tackled cross-sectional differences between those that take-up business support services and those that do not (e.g., Bruhn & Zia, 2013), there has been little discussion about how some events, such as

moments of business distress affect the probability of taking-up consulting and training. Specifically, we propose that the self-employed may be more likely to search for these types of services in moments of business distress, where the need for external knowledge becomes more evident. In the context of small- and medium-sized enterprises (SMEs), discontinuous events and the associated business distress have shown to be fruitful in triggering learning for entrepreneurs (Cope, 2003). However, to our knowledge, the hypothesis that microentrepreneurs may be more inclined to take-up training in moments of distress in their businesses has not been tested so far.

To evaluate this hypothesis, a longitudinal approach is fundamental, as it allows us to observe the timing of business distress and its relation to take-up. However, one of the challenges to perform longitudinal analysis with microentrepreneurs is the scarcity of data. In absence of consistent financial reports, cross-sectional self-reported information is often the only available data source. This article tackles the challenge by relying on a unique dataset of objective indicators of microentrepreneurs distress: tax payments and credit score. For our analysis, we study an individual-level longitudinal dataset of monthly tax payments of 5,868 formalized individual microentrepreneurs (MEI in its Portuguese acronym) in Brazil. We combine this data with records of service deliveries by a nonprofit (and free) small business support initiative in favelas (low-income communities) in Rio de Janeiro. Additionally, we obtain credit scores for a sample of these microentrepreneurs twelve, six, and one month before take-up. A reduction in tax payment and a decrease in credit score are taken as signals of business distress. We then employ a difference-in-difference approach to examine the evolution of these outcomes in the year before take-up of a business support service.

We seek to contribute to the literature in three ways. First, we approach a population of entrepreneurs (self-employed with up to one employee) that has been scarcely studied and is particularly relevant for developing countries. Herein, we answer to the call for studies on entrepreneurship in emerging economies (Bruton

et al, 2013). The central theoretical contribution of our study is to enrich our understanding of learning by entrepreneurs at the Base-of-the-Pyramid, by determining drivers for engagement in external learning activities. This is of importance as the entrepreneurship eco-system is less developed in emerging economies, such as Brazil. To understand how and when entrepreneurs in these environments seek for help, contributes to the understanding of resource mobilization in the context of institutional voids (Khanna, Palepu & Sinha, 2005). Finally, we propose a set of observable indicators that could be used to signal business distress in an objective and longitudinal manner and that might be valuable for future studies as sources of reliable data on the activities of microentrepreneurs.

The article continues as follows: The next section provides a literature review about motivations for knowledge acquisition from an entrepreneurship perspective and related findings from previous empirical studies of determinants of take-up of business training and consulting by microentrepreneurs. We then continue to present the identification strategy and data used in this paper before presenting the results and the implications for theory and practice of entrepreneurship.

2. Literature Review

2.1. Motivation for Learning of Microentrepreneurs

Knowledge acquisition has a fundamental role in entrepreneurship theory. Kirzner (1979) already theorized that entrepreneurs obtain profits because they act as arbitrageurs, capitalizing on the opportunity of knowledge or information asymmetries in the market (Kirzner 1997). Based on this latter theoretical assumption and building on the Resource-based view (Barney, 1991), a large part of the entrepreneurship literature considers learning and knowledge as crucial for the

creation of value and revenue (Ireland, Hitt, Camp, & Sexton, 2001). This is achieved especially through the influence of knowledge on the way in which an entrepreneur recognizes opportunities (Baron & Ensley, 2006) and its impact on the development of skills that shape innovative practices (Spicer & Sadler-Smith, 2006).

In the general entrepreneurship context in which entrepreneurial learning takes place, various authors have focused on the question of how small business owners learn to explore and exploit opportunities (Wang & Chugh, 2014), considering internal as much as external sources of knowledge (Young & Sexton, 2003). In SMEs, individuals can learn both from the stock of knowledge accumulated inside the boundaries of the firm and externally (Spender, 1996). But the smaller the firm, the more restricted the possibilities for internal learning. At the extreme of the size continuum are self-employed individuals with no employees, who can learn only by experience or acquiring knowledge externally. Thus, in order to understand from a strategic entrepreneurship perspective, what can trigger external learning of microentrepreneurs (particularly their take-up of business trainings and consulting), one must understand their learning motivation.

Young and Sexton (2003) propose that the motivation for entrepreneurs to learn derives from the perception of a problem or an opportunity that leads to the identification of a knowledge gap. The problem or opportunity at hand may be associated with internal or external sources. For example, changes in the external environment—in the form of new laws or regulations or changes in the market structure—could trigger learning, as they challenge preexisting knowledge and the way learning takes place (Kelliher, 2007; Kelliher & Reinl, 2009).

Once a knowledge gap is identified, entrepreneurs can engage in learning activities in either a reactive or proactive way (Young & Sexton, 2003). Although few studies have analyzed empirically whether the motivation for learning is reactive or proactive, there are some qualitative studies that indicate that entrepreneurs might be particularly prone to engage in a learning activity if there is pressure and they

feel the need to react to it (Sexton, Upton, Wacholtz, & McDougall, 1997; Young & Sexton, 2003). The small business learning framework proposed by Kelliher and Henderson (2006) similarly puts emphasis on the external environment as the primary driving force of learning. The rationale is that small firms have insignificant industry power and are, therefore, strongly shaped by pressure from the environment. Combined with a simpler firm structure and resource constraints, learning in small firms would be less influenced by internal factors and better explained as a short-term reaction to day-to-day demands. Hereby, the model identifies the owner as pivotal for formal learning, such as what occurs in training (Kelliher & Henderson, 2006).

If external knowledge acquisition is more likely to be motivated in a reactive way, discontinuous events can be fruitful for triggering learning, as entrepreneurs may be unable to cope in an effective way with nonroutine situations (Marsick & Watkins, 1990). In this sense, the inability to deal with a critical situation may have an upside, as it can increase the likelihood of a learning reaction to this feeling of ”crisis” (Fiol & Lyles, 1985). In this sense, Scott and Bruce (1987) argue that each stage of business growth is initiated with a crisis.

In a qualitative study, Cope (2003) analyzes the learning outcomes of events that were self-defined by participating entrepreneurs as “critical.” The author argues that these discontinuous events can trigger learning, as they stimulate the entrepreneurs’ critical reflection in a structured and goal-directed way. Similarly, a qualitative study that analyzes how small firms in a state of crisis deal with resource constraints points out the importance of this discontinuous event on knowledge accumulation and capability building. Due to the lack of resource constraints that the perception of these events involve, the need for capability development becomes more urgent and leads to an active engagement of the entrepreneur into knowledge and skill building, which ultimately leads to new solutions (Macpherson et al., 2015).

In sum, based on a strategic entrepreneurship perspective, the learning of microentrepreneurs may be particularly motivated by a reaction to external disruptions and related business distress, as learning is less likely to be triggered by internal factors in the absence of a bigger organizational structure and changes in the external environment are more difficult to monitor and, thus, anticipate with proactive learning. Once entrepreneurs perceive the knowledge gap through events that are followed by a decline in business performance, they may be more motivated to actively search for support services and take-up consulting services and training offers.

2.2. Empirical Studies on Take-up of Business Trainings by Microentrepreneurs

Some studies analyze drivers of take-up of business trainings by microentrepreneurs, particularly exploring potential reasons for low take-up - such as costs for training - and comparing take-up rates across demographic profiles of entrepreneurs.

With costs for business training as high as US$400, it is not surprising that scholars argue that training might be not affordable for microentrepreneurs (McKenzie & Woodruff, 2013). In addition to training fees, indirect costs such as money spent to reach the training facility and the opportunity costs for the time spent in the training must be considered. However, a comparison of take-up rates between trainings of different cost structures and financial incentives does not support this inference. A randomized field experiment in Bosnia-Herzegovina, for example, showed a take-up rate of only 39%, despite the training being free of charge and a financial compensation for the opportunity costs of the entrepreneurs' time being provided (Bruhn & Zia, 2013). A study in Mexico that focuses on financial literacy trainings for the general public (Bruhn et al., 2013) also tests financial incentives to

increase take-up and finds significant but limited effect (increase of up to 33% with a US$72 compensation for a half-day training). This indicates that the monetary aspect of training has only limited potential to explain take-up.

Another explanation for low take-up might be that microentrepreneurs simply do not benefit from it. However, evidence about the effect of training and better business practices supports the assumption that business owners benefit from being better prepared. Panel data from Kenya, Nigeria, and Sri Lanka shows, for example, that the survival and growth rates of small firms is indeed associated with better business practices (McKenzie & Woodruff, 2015). Similarly, a randomized controlled trial (RCT) in Pakistan demonstrates enhancements in business practices and less business failures after an eight-day business training for male clients (Giné & Mansuri, 2014). Related, an RCT in Peru shows increases in business knowledge of microcredit clients after training sessions during their group meetings (Karlan & Valdivia, 2011). This is consistent with positive evaluations based on self-reported data on the usefulness of the business training content after the training takes place (Giné & Mansuri, 2014). These studies show that microentrepreneurs who participate in training do experience and perceive a learning effect that also presents itself in the way they conduct business, although results are ambiguous when it comes to business performance outcomes. While many studies report a relative short time between the intervention and the performance measures, an RCT in Peru also finds support for the training effect in the long run. General business training and business training combined with individual technical assistance increased sales by more than 15%, as measured two years after the intervention (Valdivia, 2015).

Surprisingly, reported interest in training does not serve as a good predictor for training take-up. Take-up rates are low, even among those who explicitly show interest in training beforehand (Valdivia, 2014; Bruhn & Zia, 2013). Valdivia (2014), for example, defines the eligibility for being assigned to the treatment or control groups based on previously expressed interest in participating in business training

through a signed commitment form. Nonetheless, only half of the invited individuals participated in the training. The results are similar to the observations of take-up by Bruhn & Zia (2013), who register that only 39% of those who indicated previous interest in the training participated. The authors also report lack of time as the strongest reason for young microcredit clients in Bosnia Herzegovina not participating in the business training, even though they indicated interest.

There are a handful of studies with available data to compare underlying demographic and business characteristics of entrepreneurs who participate in training programs with those who do not. Some field experiments show that entrepreneurs who accept business training invitations are slightly more successful (Calderon, Giorgi, & Cunha, 2013; de Mel, McKenzie, & Woodruff, 2013), which indicates that take-up may depend on the business situation and the abilities of its owner. Age also seems to be positively related to take-up (Valdivia, 2014). On most of the demographic variables, however, participants and nonparticipants do not seem to differ.

There are two studies that look at self-reported performance trends before take-up, with conflicting results. One study with microentrepreneurs from the Dominican Republic shows that better business performance in the last month prior to training is positively related to training take-up (Drexler, Fischer, & Schoar, 2014). An impact assessment of a Kaizen training program with small business owners in Kenya, however, finds that business owners who participated in the training had a constant earning decrease over four years before take-up in comparison to the matched control group (Mano, Akoten, Yoshino, & Sonobe, 2014).

In contrast, a well-known result in the evaluation of adult employment and training programs is that participants tend to face an earnings decline prior to training take-up. The so-called “Ashenfelter’s dip” was first identified by the correspondent author in 1978 (Ashenfelter, 1978) and has since been observed in a series of other

studies related to employment training programs and higher education programs (Ashenfelter & Card, 1984; Card, 1999; Heckman & Smith, 1999).

In sum, the results about motivation for take-up of training are ambiguous. Particularly, the conflicting results about performance trends prior to take-up indicate that further longitudinal data about entrepreneurs who take-up training and those who do not is needed in order to assess the role that discontinuous events and firm distress have on training take-up. In the face of theoretical assumptions from the strategic entrepreneurship literature and a well-established earning decline prior to training take-up in the general population, this is a particularly interesting gap to fill.

3. Data and Method

3.1. Context

Our research takes place in low-income communities in Rio de Janeiro, Brazil. We chose this setting for our research analysis because entrepreneurship is traditionally strong in these neighborhoods. In the course of the "pacification" of these low-income communities (e.g., Freeman, 2014; Rodrigues, 2014) known as *favelas,*[1] entrepreneurship gained momentum as a mean to contribute to growth and job generation in these low-income communities. To support microentrepreneurs' growth, free service centers were installed by a nonprofit private entity in cooperation with the municipality.

[1] The process of 'pacification' describes a law enforcement program initiated in 2008 by the State of Rio de Janeiro to reclaim territories, known as favelas, controlled by drug lords. After a first police intervention by the elite battalion (BOPE), the Police Pacification Unit (UPP) established permanent district offices in the reclaimed territory. In the moment of writing this paper in 2016, 38 UPPs have been installed in the city of Rio de Janeiro.

3.2. Datasets

The dataset used in this paper comes from three different sources: (1) Brazilian Micro and Small Business Support Service (henceforth SEBRAE) data, (2) Serasa-Experian database, and (3) Tax and Social Security Payment database.

(1) SEBRAE is a nonprofit private entity that fosters entrepreneurial activities and promotes development of small businesses in Brazil. SEBRAE has a network of nearly 700 onsite service centers, 5,000 small business experts, and a large pool of external consultants. The work is directed toward guidance to help small businesses grow and generate more employment. Toward this aim, SEBRAE consultants engage in knowledge transfer through a diverse set of business trainings and workshops, technical assistance, and general orientation, pointed to small entrepreneurs or those who want to start their own businesses (Sebrae, 2016).

In the course of the "pacification," SEBRAE started to install district offices in many of the pacified communities in order to foster local economic development. At most, 31 offices in the different districts in Rio de Janeiro have been in place over the years, each open one to two days a week to cater to microentrepreneurs. In these neighborhood offices, people can seek general orientation, get help navigating the formalization process, sign up for training, and take business management courses. The majority of the provided services (around 80% of the cases) are one-to-one sessions in which SEBRAE provides customized consultancy on issues raised by the entrepreneurs.

The service portfolio focuses particularly on microentrepreneurs eligible for the individual microentrepreneur program (MEI), but not exclusively. Also informal microentrepreneurs and microbusinesses of up to 10 employees can take-up the support services. However, for our analysis we focus only on the legal form of MEI. Eligibility criteria for MEI is defined by a maximum of one formal employee

and annual sales of less than R$60,000 (US$18,000). The MEI program was designed by the federal government in 2009 to make formalization easier and reduce bureaucracy. It reduces taxes and simplifies processes for opening and maintaining a formal business. This is achieved through an income tax exemption and by combining social security contributions and industry sector taxes into a simplified and greatly reduced monthly lump sum payment. In the SEBRAE offices, microentrepreneurs can get technical help for all processes related to formalizing or maintaining a business as an MEI. Consultants in these offices also help with general business questions and in the set-up of larger businesses.

The SEBRAE data consists of individual-level data of microentrepreneurs formalized as MEIs who sought out SEBRAE offices in Rio de Janeiro's *Complexo do Alemão*, *Jacarezinho*, *Rocinha,* and *Complexo da Maré* districts from the time of office opening until August 2016. It includes detailed information about the services provided by SEBRAE to each microentrepreneur, such as date of service, type of service, individual tax identification code (CPF), age, gender, company tax identification code (CNPJ), and address. Our main variable of interest from this dataset is the date of the take-up of the first service by the entrepreneur.

(2) Serasa-Experian is one of the main credit bureaus in Brazil. Besides providing credit-related information, Serasa also provides for marketing purposes lists of individuals and companies with demographic information and addresses. We acquired from Serasa a list of all company ID numbers (CNPJs) of MEIs (active by July 2016) registered in the zip codes served by SEBRAE in our four districts of interest, along with the birthdate and gender of these microentrepreneurs. From the same source, we could also obtain credit scores for a subsample of microentrepreneurs.

(3) The payment records for taxes and social security payments by MEIs can be publicly accessed through the *Ministerio de Fazenda* webpage, given one has the company ID number. Since we have company ID numbers from both SEBRAE and Serasa-Experian datasets, we were able to download all MEIs' individual records containing the history of monthly payments from the opening date of each company through July 2016. Therefore, we have, in principle, the payment records of all formalized microentrepreneurs in the four districts, regardless of whether they actually visited SEBRAE or not. This data also allow us to distinguish between microentrepreneurs who work in services and those who work in commerce or industry.

3.3. Variables

In order to identify a distress in the business of microentrepreneurs, one natural option would be to evaluate performance trends. For very small businesses, however, there is usually no objective performance data, and self-reported data is, in many cases, an imprecise estimate, as microentrepreneurs are known to keep little record of their sales and costs (Bruhn & Zia, 2013; Honig, 1998). In addition, McKenzie and Woodruff (2013) raise the concern that the process of knowledge acquisition may affect the precision of self-reported performance measures as it may lead to better understanding and more precise registering of the business financial flows by the entrepreneur. As a consequence, the entrepreneurs may be less likely to underreport sales and profits over time (which is particularly troublesome for longitudinal comparisons).

To avoid the imprecision of self-reported performance data, we consider other variables that reflect a state of distress and that can be tracked objectively over time. Considering that microentrepreneurs usually have limited cash reserves and

face credit constraints (Yunus, 1999), once business performance suffers, the entrepreneurs are likely to have cash flow problems and fall into arrears. Based on this rationale, we observe two different variables that can capture an unstable state of the business: (1) compliance with tax payments and social security contributions and (2) credit score.

Microentrepreneurs who are formalized as MEIs in Brazil have to pay a subsidized fixed monthly contribution. This contribution's main component is a social security payment to guarantee their rights for social security and to assure that the company ID stays active in the long run.[2] Depending on the sector they work in, microentrepreneurs must pay an additional R$5 city tax (service sector) or R$1 state tax (commerce and industry sector), which makes the contribution payment per month R$45 to R$50 (approximately US$17). Microentrepreneurs have until the 20th of each month to make their payments. Payments can be made early or late (subject to a late fee). As previously stated, the monthly payment history from the date of business opening is public record, and we downloaded it from the internet. Thus, we were able to observe payments prior to the take-up of the first business service, and we have a thorough analysis of their longitudinal dynamics.

Additionally, we analyzed credit scores, which measure the credit risk of the microentrepreneur and are mainly affected by late payments in loans or consumption bills (but not by late payments in taxes, which are not registered by the credit bureaus). Credit scores can be calculated by the credit bureau for any moment in the past, based on stored history of entrepreneurs' credit-related events. As one single model is used to predict the scores, these measures are comparable over time. While there is little information on the credit history of the firms, more than 95% of the MEIs have enough personal credit information so that scores can be calculated. The use of the personal credit score is an adequate proxy in this case, as

[2] It is up to Brazilian municipalities to cancel company IDs of those MEIs who do not comply with tax payment. For example, the municipality of Rio de Janeiro will cancel company IDs of MEIs who did not comply with the contribution payment for the first time at the end of 2016.

for microentrepreneurs with up to one employee, business and personal finances are closely entangled, so instabilities in the business would be very likely to quickly manifest themselves in arrears of the business owners. Thus, the credit score provides a second objective indicator of a possible business crisis before take-up of consulting or training services and takes into account a complementary set of information to the one obtained with tax and social security payments.

3.4 Identification Strategy

Our goal is to analyze the relationship between the take-up rate of SEBRAE's business support services and distress in the business before take-up. We hypothesize that a distress in the business (proxied by arrears in tax and social security payments as well as by credit score) increases the probability of take-up.

We conduct three different, albeit related, analyses. In a preliminary analysis, we use a sample that includes only MEIs that used SEBRAE services at some moment (treatment group). We keep all MEIs with opening dates that range from January 2010 to March 2016 and payments made from February 2010 to March 2016. We exclude those that took up SEBRAE services for the first time less than 12 months after formalization, so we can observe the payment trend for at least a whole year before take-up. This sample includes 882 MEIs who received SEBRAE services (29% from Rocinha, 26% from Complexo da Maré, 23% from Complexo Alemão, and 22% from Jacarezinho). For a random subsample of 663 MEIs, we also obtained three measures of credit scores for 12, six, and one month before take-up.

Although there is no control group (i.e., MEIs that did not take-up SEBRAE services at all) in this sample, it is possible to estimate the differential trends before take-up due to the fact that these MEIs took-up SEBRAE services for the first time in different moments over time. The advantage of this model is that we deal with a set of microentrepreneurs who are alike on a number of time-invariant unobservable

characteristics related to take-up of business training. Conceptually, this model is similar to an event study, but the outcomes of interest are changes that happen before the treatment and not after it occurs.

For this purpose, we estimate a linear probability model based on the following OLS specification:

$$Pay_{ij} = \sum_{t=1}^{t=11} b_t Time_{tij} + a_i + ag_{ij} + d_{ij} + w_j + e_{ij} \qquad \text{(Model 1)}$$

where *Pay* is a dummy variable that takes the value 1 for a calendar month in which taxes are payed and 0 otherwise; $Time_t$ indicates a dummy variable that represents the calendar month t months before the take-up by microentrepreneur j; λ indicates a set of dummy variables, representing the number of months before take-up from 1 to 11; α indicates the calendar month fixed effects; $\alpha\gamma$ indicates the interaction of calendar month and community fixed effects; δ indicates the business age (time from formalization, in months) fixed effects; ω indicates microentrepreneur fixed effects; and ε represents the random error term. As for the indexes, *i* indicates calendar month and *j* the microentrepreneurs.

We use a set of fixed effects that capture macroeconomic changes (calendar month) and community-specific time changes (calendar month interacted with community). Furthermore, as MEIs tend to reduce their payment rates over time, we also include fixed effects for business age (time since formalization).

Our parameters of interest are the coefficients of the time dummies previous to take-up. We use a set of dummy variables to represent each month before take-up from one month to 11 months before take-up: time = 1 (one month before) to time = 11 (11 months before). As we use monthly payment data from up to three years before take-up to one month before take-up, but include dummy variables only for

the 11 months before, the coefficients of these variables can be interpreted as differences from the average payment rate 12 months or more before take-up.

We would expect to find significant and negative coefficients in the last few months before take-up, which would indicate that entrepreneurs tend to take-up services once they are in distress situations. Finding no significant dummies during the whole 11-month period would indicate steady performance previous to take-up and no distress, rejecting our hypothesis.

For credit score as a dependent variable, we use the same model, but instead of considering the monthly trends we evaluate the trend with the three longitudinal observations at 12, six, and one month before take-up.

In order to account more precisely for overall differences in payments over time in the areas covered by SEBRAE, we conducted a second analysis that includes observations from a control group of microentrepreneurs who never took-up any SEBRAE training. As there is a large number of entrepreneurs in the areas that we consider in our analysis, the additional observations significantly increase the sample size to estimate general trends, increase statistical power, and make our overall results more robust. We found a pool of 18,063 potential "control" entrepreneurs in the communities of interest based on Serasa data.

As the entrepreneurs who did not take-up SEBRAE services are likely to be different from those that used them at some point, we employ a matching procedure on time-invariant observable variables to select a more comparable sample of controls. The matching procedure includes an exact match on gender, business sector (service, commerce, or both), community (Alemão, Jacarezinho, Rocinha, or Maré), and date (month/year) of business opening. This is a quite strict match, as it not only assures balance between the groups, but also demands that each treated individual has a set of identical controls in this set of observed variables. Within each cell of exact

match, we select up to five controls without replacement based on computed Mahalanobis distance for birthdate.

After matching treated and control groups and excluding MEIs out of common support, we keep 882 treated microentrepreneurs and 2,988 controls. We then estimate the same model (Model 1) with a larger sample including treated and controls.

Our third analysis is similar to the previous one, except that we generate placebo treatments for these controls according to the date on which the respective treated matched entrepreneur visited SEBRAE. This means that, based on the matched sample, we define the corresponding *time* before take-up for each microentrepreneur of the control group that reflects the *time* before take-up of its corresponding match. This procedure allows us to perform a differences-in-differences analysis, comparing the evolution of payment between treatment and control groups before take-up (or placebo take-up).

We use a linear probability model, with the same fixed effects as in Model 1, as follows:

$$Pay_{ij} = \sum_{t=1}^{t=11} b_t Time_{tij} * Sebrae_j + a_i + ag_{ij} + d_{ij} + w_j + e_{ij} \qquad \text{(Model 2)}$$

where

Pay is a dummy variable that takes the value 1 for a calendar month in which taxes are payed and 0 otherwise; $Time_t$ indicates a dummy variable that represents the calendar month t months before the take-up by microentrepreneur j (or placebo take-up for the control group); *Sebrae* is a time-invariant variable that indicates the treatment condition (1 = SEBRAE services and 0 = control group); α indicates the

calendar month fixed effects; $\alpha\gamma$ indicates the interaction of calendar month and community fixed effects; δ indicates the business age fixed effects; ω indicates microentrepreneur fixed effects; and ε represents the random error term. Indexes are similar to those in Model 1: *i* indexes calendar month and *j* indexes each microentrepreneur.

This is an atypical difference-in-difference model. Usually, difference-in-difference models are used to estimate the effects of the treatment after treatment occurred. In this case, we are interested in differences in the changes of payment between treatment and control groups before treatment occurs. We expect to observe negative coefficients for in the months immediately before take-up. This would indicate that, compared to past payment patterns (more than 12 months before take-up), the payment rate of those that take-up SEBRAE services falls compared to those that do not search for such services.

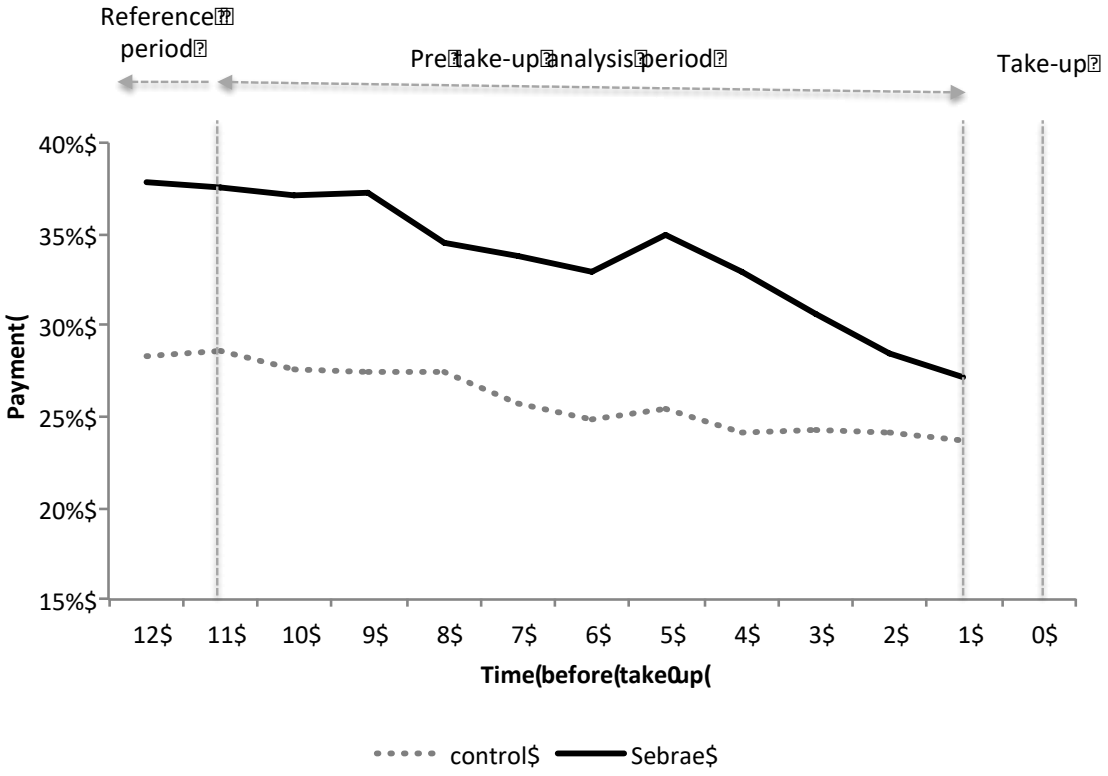
4. Results

In order to understand whether microentrepreneurs who take-up services are experiencing a critical business situation that motivates them to search for business support services, we compare the payment history of microentrepreneurs who reach out to SEBRAE with the payment history of similar microentrepreneurs who do not come to SEBRAE.

Based on the matched entrepreneurs used in Model 2, Figure 1 shows that MEIs who take-up services have better payment histories, with payment rates being nearly 10% higher on average than the matched controls one year before take-up (Figure 1). This suggests that MEIs who search for SEBRAE are better payers.

However, the evolution in payment behavior before the first take-up is distinct between the treated and control groups. The payment rate of the treated falls from 37% six months before take-up to 30% one month before, while the payment rate of the control group remains mostly stable. This perceived drop leads to narrowing the gap in payment rate between treated and controls.

Figure 1 – Payment rates for treated and control groups (with placebo treatment)



* Placebo treatment dates are considered for controls.

This indicates a payment fall-off of the treated microentrepreneurs prior to their first service take-up and may reflect short-term business problems faced by the MEI. This suggests that MEIs are more likely to acquire business improvement services when they suffer some distress. This directs us to assume that microentrepreneurs face a critical decline in company income before they decide to acquire business support services.

Table 1 – Estimates for payment before first treatment by SEBRAE

Time (before take-up, months)	Model 1 (only treated)	Model 1 (treated and controls)	Model 2 (treated and controls with placebo treament)
11	-0.0077	-0.0014	-0.0076
	(0.0112)	(0.0118)	(0.0142)
10	0.0030	0.0095	0.0146
	(0.0126)	(0.0115)	(0.0139)
9	0.0040	0.0118	0.0121
	(0.0135)	(0.0121)	(0.0146)
8	-0.0153	-0.0098	-0.0119
	(0.0143)	(0.0119)	(0.0139)
7	-0.0070	-0.0049	-0.0074
	(0.0147)	(0.0121)	(0.0144)
6	-0.0091	-0.0069	-0.0054
	(0.0157)	(0.0128)	(0.0148)
5	0.0158	0.0179	0.0130
	(0.0162)	(0.0125)	(0.0143)
4	0.0098	0.0084	0.0089
	(0.0172)	(0.0132)	(0.0150)
3	-0.0072	-0.0109	-0.0250*
	(0.0176)	(0.0130)	(0.0149)
2	-0.0251	-0.0284**	-0.0385***
	(0.0154)	(0.0139)	(0.0154)
1	-0.0385*	-0.0418***	-0.0462***
	(0.0154)	(0.0144)	(0.0154)
Fixed effects			
Calendar month	Yes	Yes	Yes
Calendar month # community	Yes	Yes	Yes
Business age	Yes	Yes	Yes
Microentrepreneur	Yes	Yes	Yes
N. of entrepreneurs	882	3,870	3,870

*p < .10 **p < .05 ***p < .01

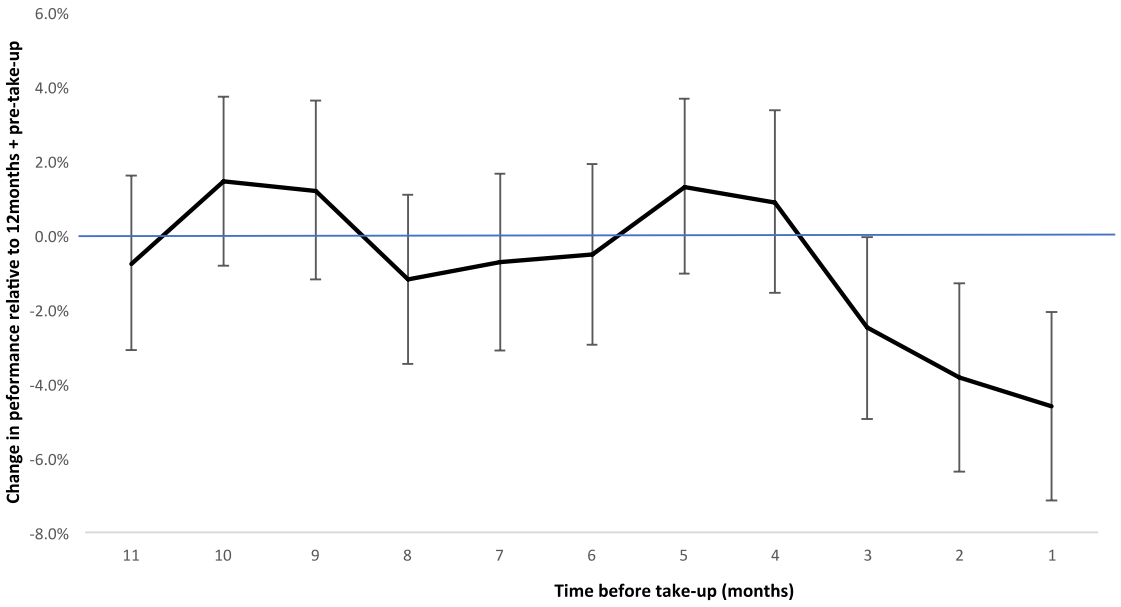
Standard errors between parentheses.

In order to test the significance of the difference in the payment trends before the first take-up of a SEBRAE service, we first estimate a model without the additional controls (Model 1) and then estimate a difference-in-difference model (Model 2). The reference category in both models is defined as the period up to 12 months before take-up. Thus, the coefficients are interpreted as changes in the payment rate relative to this period.

The estimates (Table 1) indicate that probability of an entrepreneur's payment falls shortly before taking-up services. According to the model estimated only with the treatment group (Model 1), treated microentrepreneurs start to have a payment fall-off three months prior to training take-up (-0.7%), which becomes significant in the last month (-3.8%), compared to the payment pattern of more than 12 months before take-up. The double difference model estimates the changes in payment rates between the treated and control groups compared to the difference in the period from 12 to 36 months before take-up (Figure 2). We observe a significant fall of 2.5% in payment for the treated group already three months before take-up compared to the entrepreneurs in the control group, followed by a reduction of 3.9% in two months and 4.6% one month before take-up.

In the credit score model, we estimate a model similar to Model 1, but with only three longitudinal data observations per entrepreneur. We observe that, compared to 12 months before take-up, the credit score falls six months before take-up (b = -18.6, p = .069) and is even more reduced in the month before take-up (b= - 27.22, p = .10). As the credit score ranges from 0 to 1,000 (mean = 330, SD = 229), this result indicates sizable changes and that entrepreneurs are more likely to take-up consulting and training services after financial distress.

Figure 2 – Tax and social security payment trend previous to take-up estimates in Model 2



* Error bars represent 90% confidence intervals.

In sum, our results suggest that microentrepreneurs experience an unsteady state of their business prior to reaching out to SEBRAE. The significant lower average number of monthly contributions and reduced credit score indicate that the business undergoes a negative change. The conclusion is that the need to cope with this challenge leads the microentrepreneur to prioritize the search for business support over other demands.

5. Discussion

Our results make an important contribution to the strategic entrepreneurship literature by pointing out reasons why microentrepreneurs might be more inclined to take-up business support services. The strategic entrepreneurship literature has pointed out that learning activities might be undertaken because of pressure on the business, which leads to a perceived need for action (Sexton, Upton, Wacholtz, & McDougall, 1997; Young & Sexton, 2003). Our results underline that

microentrepreneurs are particularly prone to the take-up of business support services if they undergo a critical business situation represented by a decline in tax payment and in credit scores. These things indicate an MEI's inability to deal with the causes of the distress, resulting in business underperformance. We argue that as struggles continue, the need for capability development becomes more urgent, which leads to an increase in the take-up of business support services as a way to search for new problem solutions (Macpherson et al., 2015). Thus, the microentrepreneur has a higher tendency to engage in external learning activities once she faces a business problem that she is unable to solve on her own. Therefore, the empirical evidence of this paper suggests that motivation for the take-up of business support services is driven by external environment pressure and may be due to the microentrepreneur's perceived knowledge gap (Kelliher & Henderson, 2006). Our analysis also implies that microentrepreneurs take different amounts of time to perceive knowledge gaps and the need for external help. While some microentrepreneurs take-up a business support service right after having failed once in their monthly tax payment, others seem to wait up to three months. Overall, the findings support Cope's (2003) argument that a discontinuous event can increase critical reflection in a goal-directed way and show that his argument holds in the context of microentrepreneurs.

Our results suggest that opportunity costs of attending business support services are perceived as being lower when there is a business struggle with which microentrepreneurs have to deal. This underlines the importance of understanding the microentrepreneurs' motivational reasons for take-up of external support services. It also relates to the ongoing discussion of subsistence and transformational entrepreneurship (Schoar, 2010) and the question of how public policy should address the needs of both groups. Key differentiations between the two groups range from inherent levels of innovation and creative activity of the business owner (Carland, Hoy, Boulton, & Carland, 1984) to higher levels of risk taking (Schoar, 2010) and stronger personal abilities and aspirations (Fafchamps & Woodruff, 2014). While there is a large number of subsistence entrepreneurs, few

microentrepreneurs go through a transition from subsistence to transformational entrepreneurship (Schoar, 2010). This may explain why take-up of business training is higher when microentrepreneurs face a state of distress, as shown in our analysis. Subsistence entrepreneurs may be less likely to take-up business training when the business is running solidly, as they might not perceive a need for improvement: they have less aspirations than transformational entrepreneurs. However, once they face a situation of distress, their inability to deal with the situation may end in business failure, which threatens what is, in many cases, their only family income. Thus, the take-up of a business support service may, in these situations, become a matter of survival.

From a public policy perspective, the results show that an entrepreneurship support center is an efficient tool to attract small business owners who are currently facing a state of crisis. This leads us to emphasize the importance of flexibility in the learning approach for microentrepreneurs. On the one hand, it underlines the importance of a flexible support service that microentrepreneurs can seek out when they encounter business distress. As these situations seem to be related with financial trouble, quick advice will likely matter for business survival. In order to address these demands, governments may consider investing in a constant business support service center instead of investing in occasional training programs. On the other hand, it points out the importance of flexibility in the attendance. It might be important that the support centers provide a flexible content approach for the development of the business owner's knowledge resources (Thorpe, Holt, Macpherson, & Pittaway, 2005). In contrast to many other training programs for microentrepreneurs that have been analyzed (McKenzie & Woodruff, 2013), the support centers offer individual one-on-one sessions on urgent questions and doubts. Our results support some previous findings that suggest that providing on-call responses to microentrepreneurs' problems might be more suitable for development than ordinary business trainings. This might provide the flexibility needed to react to the diverse set of problems that a microentrepreneur may face (Schreiner, 1999).

Empirical studies that attempt to characterize entrepreneurs in terms of their attitudes to work, risk, and independence may expect to find relatively low explanatory and predictive power unless they also measure the degree of the individual's preference for or aversion to each of these dimensions. They should also attempt to measure the abilities of the individuals, since this will have a positive impact on the desirability of self-employment. Finally, the remuneration of the employee, including the bonus share, and the degree of decision-making independence ceded to the individual in the employment situation are each relevant issues in the choice whether or not to become an entrepreneur.

There are large avenues for further research. Researchers might attempt to design business performance indicators that more accurately measure the degree of distress microentrepreneurs face. Given this, the intention of an entrepreneur to take-up a business support service in Base-of-the-Pyramid environments might be evaluated with greater accuracy.

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